Integrated II Unit 11: Similarity

Universal Essential Question: Why is resilience crucial for success? How do discoveries lead to transformations? (7th)

Content Essential Question: How do mathematical relationships help us make sense of the world?

Learning Objectives At the completion of this unit, I should …	Self-Rating, what you understand/don't yet understand and (last column only) how you learned it 0 – I have no idea. 1 – I cannot solve problems yet but I am beginning to understand the strategies 2 – I can solve problems but do not yet know why the math works. 3 – I understand why the math works and can solve most problems but still make mistakes. 4 – I understand why the math works and can consistently and accurately solve problems.		
Know – Vocabulary of similarity – Theorems/postulates to prove triangles are similar – Similarity transformations			
Be able to – Use proportions to identify similar polygons. – Identify conditions to prove triangles are similar. – Use similarity relationships to calculate the perimeter, area & volume of 2d/3d figures. – Identify and use proportional parts within triangles (including geometric mean). – Use the mid-segment theorem in similar figures.			
Understand – The difference between rigid motions and similarity transformations. – Two or more similar polygons have equal proportionality of corresponding sides and congruent corresponding pairs of angles.			

Vocabulary of similarity

Dilation	Reduction
Similarity	Transformation
Proportions	Mid-Segment
Geometric Mean	

Reflection page

1. **Choice Matrix:** Complete one cell in each row and each column as you work through the packet.

Identifying similar polygons pages 1-4 of packet	Using similarity to solve problems pages 5-6, 11-16 of packet	Use proportional parts within triangles pages 7-9 of packet
Create a poster, comic strip or storyboard explaining how to determine similar polygons, including triangles. Include at least one example.	Write a letter to an absent peer describing how to use similarity to solve problems. Be sure to include several examples.	Create a Geometer's Sketchpad or Geogebra document showing proportional relationships of parallel lines in a triangle. Use measurements to prove the relationships. Save and send it to me.
Compare/contrast similarity and congruence.	Measure the height of a tree using shadows. Explain how you use similarity to do this and what assumptions you need to make to do this.	Write and perform a poem, song, or rap summarizing proportional parts w/in a triangle
Make a flowchart (or other graphic organizer) that shows the steps you would go through to determine if a polygon is similar or not. Test it with two problems – one that's a polygon and one that's a triangle.	Create an infographic showing the solution to two real-world problems using similarity.	Create a graphic organizer showing proportional relationships in a triangle and how to solve for them

2. Describe two real-world examples from your life that illustrate how similarity helps you make sense of the world. Be sure to connect each example to the mathematics in this unit.